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## Meningococcal Disease

### **Overview**<sup>(1,2)</sup>

For a more complete description of Meningococcal Disease, refer to the following texts:

- Control of Communicable Diseases Manual (CCDM).
- Red Book, Report of the Committee on Infectious Diseases.

### **Case Definition**<sup>(3)</sup>

#### ***Clinical description***

Meningococcal disease manifests most commonly as meningitis and/or meningococcemia that may progress rapidly to purpura fulminans, shock, and death. However, other manifestations may be observed.

#### ***Laboratory criteria for diagnosis***

- Isolation of *Neisseria meningitidis* from a normally sterile site (e.g., blood or cerebrospinal fluid [CSF] or, less commonly, joint, pleural, or pericardial fluid).

#### ***Case classification***

*Confirmed:* a clinically compatible case that is culture confirmed.

*Probable:* a case with a positive antigen test from the CSF or clinical purpura fulminans in the absence of a positive blood culture.

*Presumptive:* a clinically compatible case with gram-negative diplococci visualized in the patient's serum or CSF.<sup>(4)</sup>

#### ***Comment***

Positive antigen test results from urine or serum samples are unreliable for diagnosing meningococcal disease.


### **Information Needed for Investigation**

**Verify clinical diagnosis, but do not wait for confirmation by culture to administer chemoprophylaxis.** What laboratory tests were conducted? What were the results? What are the patient's clinical symptoms?

**High-risk contacts of confirmed, probable, and presumptive meningococcal cases should receive antimicrobial chemoprophylaxis as soon as possible.**

**Establish the extent of illness.** Determine if household or other close contacts are, or have been, ill by contacting the health care provider, patient or family member.

**Contact the Bureau of Child Care** when case(s) are associated with a childcare facility.

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**Contact the Regional Communicable Disease Coordinator.**

### **Case Follow Up**

- Up to (5-10%) of populations with endemic disease may have asymptomatic carriers with the nasopharynx colonized with *N. meningitidis*, identification of an index case may not be possible when investigating individual cases. When multiple related cases (related by time, place, or person) are identified, efforts should be made to identify the source.
- Did the case receive proper antibiotic therapy to eliminate carriage prior to discharge?
- Identify other cases that are linked by time, place, person, and serogroup.

### **Contact Follow Up And Control Measures**

- Determine if all high-risk contacts have received appropriate prophylactic treatment (ideally within 24 hours after identification of the index patient). Individuals meeting the criteria for **high-risk contact** as described below and who had exposure to the case within 14 days before or after the case's onset of signs and symptoms should receive appropriate prophylaxis.<sup>(5,6)</sup> The contact does not require prophylaxis if the only exposure occurred 24 hours or more after the case was treated.<sup>(2)</sup>
- Examples of **high-risk contacts** include:
  - Persons living in the same household as the case.
  - Persons sharing sleeping arrangements with the case.
  - Persons attending/working in the same childcare center or nursery school as the case.
  - Persons who have shared food, drink, eating or drinking utensils, cigarettes, marijuana joints or pipes, toothbrushes, water bottles, lipstick, musical instruments with mouthpieces, mouth guards or other things that contain saliva, or have kissed the case on the mouth. - In general, anything that has been in contact with the mouth of an infected person.
  - Persons who have performed mouth-to-mouth resuscitation, intubation, or suctioning of pharyngeal secretions on the case, without using appropriate barrier precautions.
- Examples of high-risk settings include:
  - Household contacts, especially young children.
  - Child daycare or nursery schools.
  - Direct exposure to index patient's secretions through kissing or sharing toothbrushes or eating utensils, markers of close social contact.
  - Mouth-to-mouth resuscitation, unprotected contact during endotracheal intubation.
  - Frequently sleeps in same dwelling as index patient (such as college dormitories, long-term care facilities, prison, and military barracks).<sup>(5)</sup>
- Were all contacts exhibiting compatible symptoms tested for *N. meningitidis*?
- Were all locatable contacts interviewed to determine the extent of their activities and association with the case?
- Was a cluster of cases or an outbreak identified?

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- If an outbreak is occurring, and the serogroup is one for which a vaccine is available, has thorough consideration been given to utilizing it?<sup>(7,8,9)</sup>

### Control Measures

- See the Meningococcal Infections section of the CCDM, “Control of patient, contacts and the immediate environment”.
- See the Meningococcal Infections section of the Red Book.  
Follow the prophylactic recommendations as contained in the Red Book. Modification to these recommendations are as follows:

**High-risk contacts (as described above) of confirmed, probable, and presumptive meningococcal cases should receive antimicrobial chemoprophylaxis as soon as possible.** The rate of secondary disease for close contacts is highest during the first few days after onset of disease in the index patient, antimicrobial chemoprophylaxis should be administered as soon as possible (ideally within 24 hours after identification of the index patient).<sup>(6)</sup> Beginning chemoprophylaxis more than 2 weeks after exposure to the index patient would be too late to prevent secondary cases.<sup>(5)</sup> The contact does not require prophylaxis if the only exposure occurred 24 hours or more after the case was treated.<sup>(2)</sup>

- Develop a list of high-risk contacts to the case.
- Close surveillance of high-risk contacts for at least 14 days would ensure prompt treatment of any secondary cases that might arise in the absence of effective chemoprophylaxis.
- Exposed household, childcare, and other close contacts must be carefully observed for early signs of illness, especially fever.
- When multiple cases occur, notify parents, physicians, and emergency rooms in the area of the occurrence of cases of *N. meningitidis*. Sample letters, fact sheets, and information about rifampin and ciprofloxacin are located at the back of this manual section.
- The meningococcal meningitis fact sheet and the “Important Information About Rifampin” and the “Important Information About Ciprofloxacin” at the back of this section may be duplicated and distributed.
- Reduce or eliminate exposure to predisposing factors such as tobacco smoke, wood smoke, chemical fumes, and severe respiratory infections.

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- Guidelines for the use of Missouri Department of Health & Senior Services (DHSS) provided rifampin or ciprofloxacin are as follows:


### Missouri Department of Health & Senior Services Guidelines for Prophylaxis:

#### Rifampin

- Rifampin prophylaxis should be initiated as soon as possible, preferably within 24 hours, and no later than 14 days after last contact with the index patient.
- If contacts can pay for the rifampin or have insurance that will pay (including Medicaid), then one of these sources should pay the cost. If the contact does not have a source of financial assistance as described above, then the DHSS will provide the rifampin free-of-charge.
- In the event that a child care center, child care home, nursery school, or other group setting such as a boarding school or institution is involved, the DHSS will assure access to rifampin prophylaxis.
- Arrangements must be made locally for a physician to prescribe and a pharmacist to dispense rifampin. In the event that the prescriptions cannot be written locally, contact the District Communicable Disease Coordinator or the Section of Communicable Disease Control and Veterinary Public Health. The DHSS will pay up to \$3.00 per prescription for rifampin dispensed by the pharmacy for **authorized** prescriptions.
- The DHSS will supply the rifampin or will replace the pharmacy's supply of rifampin used to fill **authorized** prescriptions. Contact the District Communicable Disease Coordinator to obtain replacement rifampin.
- In order to receive payment, the pharmacy must submit a bill to the district health office (or the local public health agency, which can then forward it to the district health office). The bill must include the pharmacy's name, address, number of clients receiving **authorized** rifampin prescriptions, and the total amount requested. A list of names of those persons receiving rifampin must be attached to the bill.
- Once a bottle of rifampin has been opened, it becomes the property of the pharmacy. Unopened bottles should be retrieved from the pharmacy and/or the local public health agency and returned to the district health office for future use.
- Physicians or health care establishments may wish to provide prophylaxis for persons not meeting qualifying criteria. The DHSS is unable to provide rifampin free-of-charge unless prophylaxis guidelines are met.

#### Ciprofloxacin

- Ciprofloxacin prophylaxis should be initiated as soon as possible, preferably within 24 hours, and no later than 14 days after last contact with the index patient. Ciprofloxacin should not be used in pediatric patients and adolescents (less than 18 years of age), pregnant women, and lactating women. Serious and fatal

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- reactions have been reported in patients receiving concurrent administration of ciprofloxacin and theophylline.<sup>(10)</sup>
2. If contacts can pay for the ciprofloxacin or have insurance that will pay (including Medicaid), then one of these sources should pay the cost. If the contact does not have a source of financial assistance as described above, then the DHSS will provide the ciprofloxacin free-of-charge.
  3. Arrangements must be made locally for a physician to prescribe and a pharmacist to dispense ciprofloxacin. In the event that the prescriptions cannot be written locally, contact the District Communicable Disease Coordinator or the Section of Communicable Disease Control and Veterinary Public Health. The DHSS will pay up to \$3.00 per prescription for ciprofloxacin dispensed by the pharmacy for **authorized** prescriptions.
  4. The DHSS will supply the ciprofloxacin or will replace the pharmacy's supply of ciprofloxacin used to fill **authorized** prescriptions. Contact the District Communicable Disease Coordinator to obtain replacement ciprofloxacin.
  5. In order to receive payment, the pharmacy must submit a bill to the district health office (or the local public health agency, which can then forward it to the district health office). The bill must include the pharmacy's name, address, number of clients receiving **authorized** ciprofloxacin prescriptions, and the total amount requested. A list of names of those persons receiving ciprofloxacin must be attached to the bill.
  6. Physicians or health care establishments may wish to provide prophylaxis for persons not meeting qualifying criteria. The DHSS is unable to provide ciprofloxacin free-of-charge unless prophylaxis guidelines are met.

## **Laboratory Procedures**

### **Specimens:**

- Serum.
- Cerebrospinal fluid (CSF).
- Demonstration of typical organisms in a Gram-stained smear of CSF (Gram-negative diplococcus) and the recovery of meningococci from the CSF or serum are diagnostic. Group specific meningococcal polysaccharides may also be identified in CSF by latex agglutination (LA), counterimmunoelectrophoresis (CIE), and coagulation tests. False negative results commonly occur in the CIE, LA, and coagulation techniques.<sup>(8)</sup>
- What other laboratory tests were performed (such as blood chemistry, gram stain, and/or a latex agglutination test) and what were the results? Although latex agglutination tests on CSF are of lower sensitivity than culture, these results may be useful when cultures are negative due to prior administration of antibiotics. These results may be interpreted in conjunction with other laboratory and clinical data and may provide enough information to determine that an infection with *N. meningitidis* did, in fact, occur.



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- Were drug sensitivity tests performed on the culture? If “YES”, what were the results?


## **Reporting Requirements**

Meningococcal disease is a Category I disease and shall be reported to the local health authority or to the Missouri Department of Health & Senior Services within 24 hours of first knowledge or suspicion by telephone, facsimile or other rapid communication.

1. For confirmed, probable, and presumptive cases complete a “Disease Case Report” (CD-1), and a “Record of Investigation of Bacterial Meningitis or Bacteremia Case Report” (CD-2M) revised 7/02. Please do **not** detach patient identifier information when submitting the form to DHSS.
2. Complete the “Meningococcal Disease Among College Students Supplemental Case Report Form” for each case attending an institution of higher education.
3. Entry of the complete CD-1 into the MOHSIS database negates the need for the paper CD-1 to be forwarded to the Regional Health Office.
4. Send the completed secondary investigation form(s) to the Regional Health Office.
5. All outbreaks or “suspected” outbreaks must be reported as soon as possible (by phone, fax or e-mail) to the Regional Communicable Disease Coordinator. This can be accomplished by completing the Missouri Outbreak Surveillance Report (CD-51).
6. Within 90 days from the conclusion of an outbreak, submit the final outbreak report to the Regional Communicable Disease Coordinator.

## **References**

1. Chin, James, ed. “Meningococcal Infection and Meningococcal Meningitis” Control of Communicable Diseases Manual, 17<sup>th</sup> ed. Washington, D.C.: American Public Health Association, 2000: 340-345.
2. American Academy of Pediatrics. “Meningococcal Infections”. In: Pickering, L.K., ed. 2000 Red Book: Report of the Committee on Infectious Diseases. 25<sup>th</sup> ed. Elk Grove Village, IL. 2000: 396-401.
3. Centers for Disease Control and Prevention. Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR 1997;46 (No.RR-10): 24.
4. Missouri Department of Health & Senior Services- Section of Communicable Disease Control and Veterinary Public Health surveillance case definition.
5. Apicella, M. A., “Acute Meningitis.” Mandell , Gerald L., John E. Bennett, & Raphael Dolin, Eds. Principles and Practice of Infectious Diseases. 5<sup>rd</sup> ed.: New York: Churchill Livingstone, Inc., 2000: 2228-2241.
6. Centers for Disease Control and Prevention. Prevention and Control of Meningococcal Disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP), MMWR 30 June 2000;49(RR-07): 1-10.

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7. "What is Meningococcal Disease," Facts on Meningococcal Disease, 10 Feb 1999, <<http://www.healthunit.com/diseaseprevention.htm>> (29 July 2003).
8. "Meningococcal Disease Prevention and Control Strategies for Practice-based Physicians." *Pediatrics & Child Health*, 1997; 2 (1): pages 56-64 and *Pediatrics* 1996; 97: pp 404-412.
9. University of Idaho. "Questions & Answers About Meningitis," Meningococcal Disease Information, 7 Oct 1996, <<http://www.uidaho.edu/shs/mening.html>> (29 July 2003).
10. "Physician Desk Reference, 55<sup>th</sup> ed.: Medical Economics Company Inc., Montvale, NJ: 2001: pp 847-852

### **Other Sources of Information**

1. Centers for Disease Control and Prevention. Control and Prevention of Meningococcal Disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP), MMWR 14 Feb. 1997;46(RR-5): 1-51. <<http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/00046263.htm>> (29 July 2003).
2. Baltimore, Robert S. "Meningococcal Infections." Bacterial Infections of Humans Epidemiology and Control, 3<sup>rd</sup> ed. Eds. Alfred S. Evans and Philip S. Brachman. New York: Plenum, 1998: 459-475.



# **Meningococcal Disease**

## **FACT SHEET**

### **What is meningococcal disease?**

Meningococcal disease is a bacterial infection caused by *Neisseria meningitidis*. When this bacteria affects the lining of the brain and spinal cord (the meninges), the condition is called meningococcal meningitis. It is a relatively rare disease and usually occurs as a single event.

Meningococcal disease can be rapidly progressive. With early diagnosis and treatment, the likelihood of full recovery is increased. Early recognition and prompt initiation of antimicrobial therapy is crucial, as these infections may lead to death.

### **Who gets meningococcal disease?**

Anyone can get meningococcal disease, but it is more common in infants and children.

### **What are the symptoms of meningococcal disease?**

The symptoms may include any of the following: fever, severe sudden headache, nausea, vomiting, stiff neck, pain in the shoulders and back, and a red pinpoint rash are the most common signs of this disease. High fever and irritability are signs in a very young child. If the condition is meningococcemia, then a purplish skin rash that looks like bruising may occur.

### **How soon do symptoms appear?**

The symptoms may appear 1 to 10 days after exposure, but usually within 3 to 4 days.

### **How is meningococcal disease spread?**

The meningococci bacteria are spread by direct close contact with nose and throat discharges of an infected person. People may carry the bacteria in their noses and throats without becoming ill, these persons are known as healthy carriers. Healthy carriers are able to spread the bacteria to other people, who may develop meningococcal disease with serious symptoms.

### **When and for how long is a case infectious to other people?**

A person may pass the bacteria from the time he/she is first infected and until the bacteria are no longer present in discharges from the nose and throat. Persons are usually no longer infectious after 24 hours of effective antibiotic treatment.

### **How can you reduce the risk of contracting meningococcal disease?**

Everyone should be sensitive to public health measures that decrease exposure to oral secretions, such as covering one's mouth when coughing or sneezing and washing hands after contact with oral secretions. A healthy lifestyle that maximizes your body's own immune system response, through balanced diet, adequate sleep, appropriate exercise, and avoidance of excessive stress, is very important.

Presently there is a vaccine that will protect against four of the strains of meningococcal disease. The use of the vaccine is recommended in outbreak situations, for individuals with specific medical conditions, or for those traveling to areas where the illness is clearly in excess of normal expectancy.

The American College Health Association recommends immunization of college students. It is important to note that meningococcal vaccine should not be used in place of preventive treatment

for those exposed to a meningococcal disease. The protection from immunization is too slowly generated in this situation.

### **What should you do if you suspect meningococcal disease?**

Individuals who experience any of the symptoms described above should consult their physician immediately.

### **What should I do if I have been in contact with a diagnosed case of meningococcal disease?**

The use of preventive treatment (such as rifampin or ciprofloxacin) is recommended for **close contacts** exposed to a person diagnosed with meningococcal disease. Anyone who suspects possible exposure should consult a physician immediately. Beginning preventive treatment more than 2 weeks after exposure to the case would be too late to prevent disease.

### **Who is considered a close contact?**

Close contacts are those who are likely to have been exposed to the nose and throat secretions of the sick person. Close contacts include, but are not limited to the following:

- Those living in the same house as the ill person,
- Those sharing sleeping arrangements with the ill person,
- Children sharing toys, such as in the same child care or nursery school, as the ill person,
- Those who shared cigarettes, food, drinks, or other things that contain saliva with the ill person,
- Those who have kissed the ill person,
- Those who have given mouth-to-mouth resuscitation to, intubated, or suctioned the nasopharyngeal secretions of the ill person.

Casual contact, such as being in the same classroom, workplace, or sitting at the same table with an infected person is not usually significant enough to cause concern.


### **What is the treatment for this disease?**

Certain antibiotics are very effective in the treatment of the disease and are available from your physician. Generally, penicillin is the drug of choice for meningococcal infections.

### **PRECAUTIONARY NOTATION:**

**Important information** associated with rifampin or ciprofloxacin usage for preventive treatment of high-risk contacts can be found in the following Department of Health and Senior Service's fact sheets titled: "Important Information about Rifampin For Prevention of Meningococcal Disease" or "Important Information about Ciprofloxacin For Prevention of Meningococcal Disease".

**Missouri Department of Health and Senior Services  
Section for Communicable Disease Prevention  
Phone: (866) 628-9891 or (573) 751-6113**

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## Sample Letter to Parents of Children Exposed to Meningococcal Disease at Child Care Centers and Nursery Schools

DATE \_\_\_\_\_

To Parents of Children at \_\_\_\_\_

Child Care Center/Nursery School

Dear Parent:

A child who attends the \_\_\_\_\_ child care center/nursery school in \_\_\_\_\_ classroom has been diagnosed as having [meningococcal meningitis] [meningococcal disease].

So that others do not get this illness, the Missouri Department of Health and Senior Services and the \_\_\_\_\_ (local) \_\_\_\_\_ County Health Department recommend that children who attended this classroom with the ill child from \_\_\_\_\_ (date) \_\_\_\_\_ to \_\_\_\_\_ (date) \_\_\_\_\_ receive preventive medication. Preventive treatment will help protect your child from [meningococcal meningitis] [meningococcal disease]. An antibiotic called rifampin is usually used for this treatment.

All persons who were in contact with the sick child should be watched. Anyone who has an unusual fever, headache, rash or any other unusual symptoms should be given immediate medical care. In some cases, meningococcal disease may progress very rapidly and lead to severe illness and even death.


Information sheets on rifampin and meningococcal disease are enclosed.

If you have additional questions please contact your physician or the \_\_\_\_\_ County Health Department at [phone number].

Sincerely,

NOTE: If arrangements have been made for rifampin prophylaxis, you will need to add a paragraph regarding this. Example:

The Missouri Department of Health and Senior Services and \_\_\_\_\_ County Health Department will provide rifampin free-of-charge for your child. You may pick up the prescription at \_\_\_\_\_ pharmacy after \_\_\_\_\_ a.m./p.m.

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## Sample Physician Notification Letter

DATE:

Doctor's name


Address

City, State Zip Code

Dear Dr. \_\_\_\_\_:

A case of meningococcal disease/meningococcal meningitis has been diagnosed in a child at the \_\_\_\_\_(name)\_\_\_\_\_ child care center/nursery school. Children from this child care center are being referred to their physicians for chemoprophylaxis with rifampin. Please be alert to the presence of this disease in your community and report any suspected cases promptly. If you have any questions, please contact your local health department, phone number.

Sincerely,

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## Important Information about Ciprofloxacin For Prevention of Meningococcal Disease <sup>(10)</sup>

### **Contraindications:**

Includes, but may not be limited to:

- Cipro® (ciprofloxacin hydrochloride) is contraindicated in persons with a history of hypersensitivity to ciprofloxacin or any member of the quinolone class of antimicrobial agents.

### **Warnings:**

Includes, but may not be limited to:

- The safety and effectiveness of ciprofloxacin in pediatric patients and adolescents (less than 18 years of age), pregnant women, and lactating women have not been established.
- Serious and fatal reactions have been reported in patients receiving concurrent administration of ciprofloxacin and theophylline.


### **Precautions:**

Includes, but may not be limited to:


- Quinolones, including ciprofloxacin, may cause central nervous system events, which may include: nervousness, agitation, insomnia, anxiety, nightmares or paranoia.

Patients should be advised:

- That ciprofloxacin may be taken with or without meals and to drink fluids liberally. As with other quinolones, concurrent administration of ciprofloxacin with magnesium/aluminum antacids, or sucralfate, Videx® (didanosine) chewable/buffered tablets or pediatric powder, or with other products containing calcium, iron or zinc should be avoided. These products may be taken two hours after or six hours before ciprofloxacin. Ciprofloxacin should not be taken concurrently with milk or yogurt alone, since absorption of ciprofloxacin may be significantly reduced. Dietary calcium as part of a meal, however, does not significantly affect ciprofloxacin absorption.
- That ciprofloxacin may be associated with hypersensitivity reactions, even following a single dose, and to discontinue the drug at the first sign of a skin rash or other allergic reaction.
- To avoid excessive sunlight or artificial ultraviolet light while receiving ciprofloxacin and to discontinue therapy if phototoxicity occurs.
- To discontinue treatment, rest and refrain from exercise; and inform their physician if they experience pain, inflammation, or rupture of a tendon.

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- That ciprofloxacin may cause dizziness and lightheadedness; therefore, patients should know how they react to this drug before they operate an automobile or machinery or engage in activities requiring mental alertness or coordination.
- That ciprofloxacin may increase the effects of theophylline and caffeine. There is a possibility of caffeine accumulation when products containing caffeine are consumed while taking quinolones.
- That convulsions have been reported in patients taking quinolones, including ciprofloxacin, and to notify their physician before taking the drug if there is a history of this condition.

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## **Important Information About Rifampin for Prevention of Meningococcal Disease**

Rifampin is an antibiotic. The full prescribed dosage should be taken as directed.

### **Contraindications:**

Includes, but is not limited to:

- Rifampin is not recommended for pregnant women.
- Rifampin should not be used if there has been a previous reaction to similar antibiotics.

### **Important Facts:**

- Rifampin may stain body secretions red-orange, including urine, feces, saliva, sweat and tears.
- For this reason, soft contact lenses may be permanently stained. They should not be worn while taking rifampin.
- Rifampin may reduce the effectiveness of oral contraceptives and other drugs.
- Studies have shown that Rifampin interacts with certain HIV/AIDS medications. Thus, if you are taking any prescription medications for HIV/AIDS Disease, please check with your physician prior to taking Rifampin.

### **Adverse Reactions:**

- Rifampin may cause nausea, vomiting, cramps, and diarrhea in some individuals.
- Headache, fever, drowsiness, fatigue, dizziness, mental confusion, and muscular weakness may occur.
- If any symptoms occur, please contact your physician.





MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES  
**RECORD OF INVESTIGATION OF BACTERIAL MENINGITIS  
OR BACTEREMIA CASE REPORT**

DATE OF REPORT
DATE OF ONSET

PATIENT'S NAME (LAST, FIRST, M.I.)		
PARENT'S NAME IF NOT AN ADULT		TELEPHONE NUMBER ( )
ADDRESS (NUMBER, STREET, CITY, STATE, ZIP CODE)	HOSPITAL	PATIENT CHART NO.
PLACE EMPLOYED OR SCHOOL ATTENDED	OCCUPATION	

**DETACH HERE - PATIENT IDENTIFIER INFORMATION IS NOT TRANSMITTED TO CDC**

1. STATE (RESIDENCE OF PATIENT) (1-2)		2. COUNTY (RESIDENCE OF PATIENT) (3-12)		5. HOSPITALIZED? (25) IF YES, DATE OF ADMISSION (26-31)	
				1 <input type="checkbox"/> YES MO DAY YEAR 2 <input type="checkbox"/> NO	
3. STATE CONDITION I.D. (13-18)		4. CDC I.D. (19-24)			
6. DATE OF BIRTH (32-37) MO DAY YEAR		7A. AGE (38-39)		7B. IS AGE IN DAY/MO/YR? (40)	
				1 <input type="checkbox"/> DAYS 2 <input type="checkbox"/> MONTHS 3 <input type="checkbox"/> YEARS	
				7C. IF <6 YEARS OF AGE IS PATIENT IN DAYCARE? (41) 1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO 9 <input type="checkbox"/> UNKNOWN (Daycare is defined as a supervised group of 2 or more unrelated children for >4 hours/week).	
				8. SEX (42) 1 <input type="checkbox"/> MALE 2 <input type="checkbox"/> FEMALE	
9A. RACE (43) 1 <input type="checkbox"/> WHITE 2 <input type="checkbox"/> BLACK 9 <input type="checkbox"/> NOT SPECIFIED		3 <input type="checkbox"/> AMERICAN INDIAN/ALASKAN NATIVE 4 <input type="checkbox"/> ASIAN/PACIFIC ISLANDER		9B. ETHNIC ORIGIN (44) 1 <input type="checkbox"/> HISPANIC 2 <input type="checkbox"/> NON-HISPANIC	
				10. OUTCOME (45) 1 <input type="checkbox"/> SURVIVED 2 <input type="checkbox"/> DIED 9 <input type="checkbox"/> UNKNOWN	
				11. PHYSICIAN'S NAME AND TELEPHONE NUMBER ( )	
12. TYPE OF INFECTION CAUSED BY ORGANISM (CHECK ALL THAT APPLY)					
<input type="checkbox"/> PRIMARY BACTEREMIA (46) <input type="checkbox"/> CELLULITIS (50) <input type="checkbox"/> SEPTIC ARTHRITIS (54) <input type="checkbox"/> MENINGITIS (47) <input type="checkbox"/> EPIGLOTTITIS (51) <input type="checkbox"/> CONJUNCTIVITIS (55) <input type="checkbox"/> OTITIS MEDIA (48) <input type="checkbox"/> PERITONITIS (52) <input type="checkbox"/> OTHER (SPECIFY) (56) <input type="checkbox"/> PNEUMONIA (49) <input type="checkbox"/> PERICARDITIS (53) (57-58)					
13. BACTERIAL SPECIES ISOLATED FROM ANY NORMALLY STERILE SITE * (CHECK ONE) (59)					
1 <input type="checkbox"/> <i>NEISSERIA MENINGITIDIS</i> 5 <input type="checkbox"/> <i>STREPTOCOCCUS PNEUMONIAE</i> * (PNEUMOCOCCUS) 2 <input type="checkbox"/> <i>HAEMOPHILUS INFLUENZAE</i> 6 <input type="checkbox"/> GROUP A STREPTOCOCCUS 3 <input type="checkbox"/> GROUP B STREPTOCOCCUS 8 <input type="checkbox"/> OTHER BACTERIAL SPECIES * (SPECIFY: INCLUDE MYCOBACTERIA, FUNGI) 4 <input type="checkbox"/> <i>LISTERIA MONOCYTOGENES</i> * REPORT <b>ONLY</b> CSF ISOLATES FOR PNEUMOCOCCUS OR OTHER BACTERIAL SPECIES (60-61)					
14. SPECIMEN FROM WHICH ORGANISM ISOLATED (CHECK ALL THAT APPLY)					
<input type="checkbox"/> BLOOD (62) <input type="checkbox"/> PERITONEAL FLUID (65) <input type="checkbox"/> PLACENTA (68) <input type="checkbox"/> CSF (63) <input type="checkbox"/> PERICARDIAL FLUID (66) <input type="checkbox"/> OTHER NORMALLY STERILE SITE (69) <input type="checkbox"/> PLEURAL FLUID (64) <input type="checkbox"/> JOINT (67) SPECIFY (70-71)					
15. DATE FIRST POSITIVE CULTURE OBTAINED (72-77) MO DAY YEAR					

**IMPORTANT - PLEASE COMPLETE FOR THE FOLLOWING ORGANISMS**

**HAEMOPHILUS INFLUENZAE**


16A. DID PATIENT RECEIVE <i>HAEMOPHILUS b</i> VACCINE? (78)			
1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO 9 <input type="checkbox"/> UNKNOWN IF YES, PLEASE COMPLETE THE LIST BELOW.			
DOSE	DATE GIVEN	VACCINE NAME/MANUFACTURER	LOT NUMBER
1 (79-84)	MO DAY YEAR	(85)	(86-95)
2 (96-101)	MO DAY YEAR	(102)	(103-112)
3 (113-118)	MO DAY YEAR	(119)	(120-129)
4 (130-135)	MO DAY YEAR	(136)	(137-146)
16B. WHAT WAS THE SEROTYPE? (147)		16C. IF <i>H. INFLUENZAE</i> WAS ISOLATED FROM BLOOD OR CSF, WAS IT RESISTANT TO:	
1 <input type="checkbox"/> TYPE b 2 <input type="checkbox"/> NOT TYPEABLE 9 <input type="checkbox"/> NOT TESTED OR UNKNOWN 8 <input type="checkbox"/> OTHER (SPECIFY) (148-149)		AMPICILLIN (150) 1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO 9 <input type="checkbox"/> NOT TESTED OR UNKNOWN CHLORAMPHENICOL (151) 1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO 9 <input type="checkbox"/> NOT TESTED OR UNKNOWN RIFAMPIN (152) 1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO 9 <input type="checkbox"/> NOT TESTED OR UNKNOWN	

**NEISSERIA MENINGITIDIS**

17A. WHAT WAS THE SEROGROUP? (153)		17B. IF <i>N. MENINGITIDIS</i> WAS ISOLATED FROM BLOOD OR CSF, WAS IT RESISTANT TO:	
1 <input type="checkbox"/> GROUP A 4 <input type="checkbox"/> GROUP Y 9 <input type="checkbox"/> UNKNOWN 2 <input type="checkbox"/> GROUP B 5 <input type="checkbox"/> GROUP W135 8 <input type="checkbox"/> OTHER (154-155) 3 <input type="checkbox"/> GROUP C 6 <input type="checkbox"/> NOT GROUPEABLE (SPECIFY )		SULFA (156) 1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO 9 <input type="checkbox"/> NOT TESTED OR UNKNOWN RIFAMPIN (157) 1 <input type="checkbox"/> YES 2 <input type="checkbox"/> NO 9 <input type="checkbox"/> NOT TESTED OR UNKNOWN	
SUBMITTED BY (NAME OF AGENCY)		TELEPHONE NUMBER ( )	DATE
RETURN COMPLETED REPORT TO: MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES, SECTION OF COMMUNICABLE DISEASE CONTROL AND VETERINARY PUBLIC HEALTH, PO BOX 570, JEFFERSON CITY, MO 65102.			

[illegible]

FOLLOW-UP NOTES

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	Updated 7/03
	Subsection: Meningococcal Disease	Page 18 of 18

## Meningococcal Disease Among College Students Supplemental Case Report Form

State Reporting Case: \_\_\_\_

Case ID: \_\_\_\_\_

Date of Report: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

1. How was the case identified (check all that apply)

- ☐ isolation of *N. meningitidis* from blood
- ☐ isolation of *N. meningitidis* from cerebrospinal fluid
- ☐ culture from other sterile site, specify site \_\_\_\_\_
- ☐ positive meningococcal antigen test in cerebrospinal fluid
- ☐ clinical purpura fulminans
- ☐ other, specify \_\_\_\_\_

2. Year of school

- |  |                                       |
|--|---------------------------------------|
| 1 <input type="checkbox"/> freshman;         | 2 <input type="checkbox"/> sophomore; |
| 3 <input type="checkbox"/> junior;           | 4 <input type="checkbox"/> senior;    |
| 5 <input type="checkbox"/> graduate student; | 9 <input type="checkbox"/> don't know |

3. Full-time or part-time student

- 1 ☐ full-time;  
2 ☐ part-time;  
9 ☐ don't know

[Full-time or part-time as defined by the college]

4. Housing:

- 1 ☐ apartment;  
2 ☐ dormitory;  
3 ☐ communal living situation (i.e., fraternity/sorority, college house);  
4 ☐ single family home with family members only;  
5 ☐ single home with other students;  
9 ☐ don't know;  
8 ☐ other, specify \_\_\_\_\_

5. Full name of College/University: \_\_\_\_\_

6. Has patient received the polysaccharide meningococcal vaccine?

☐ yes    ☐ no    ☐ don't know

If yes, when \_\_\_\_\_

COMMENTS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_